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PROPERTY
AND
GENERAL REGULATIONS
OF THE
SIGNAL CORPS
U. S. ARMY

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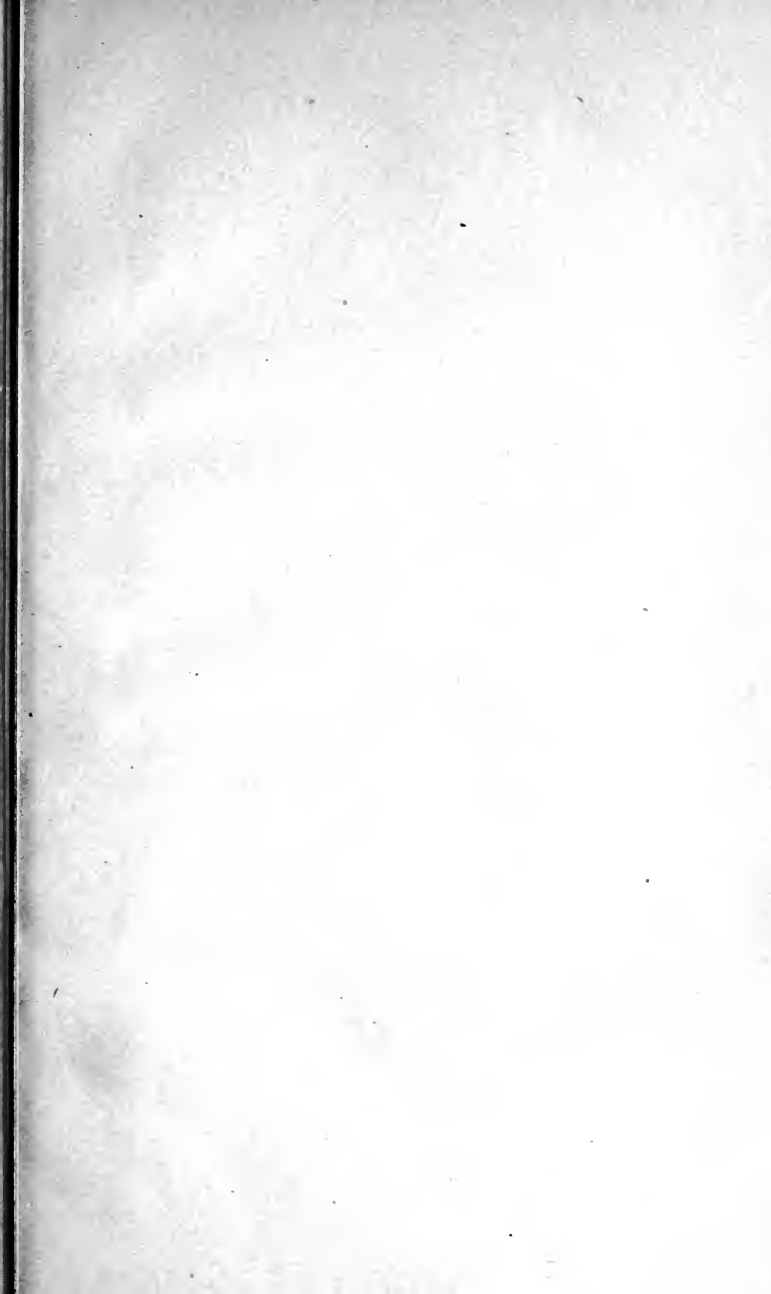
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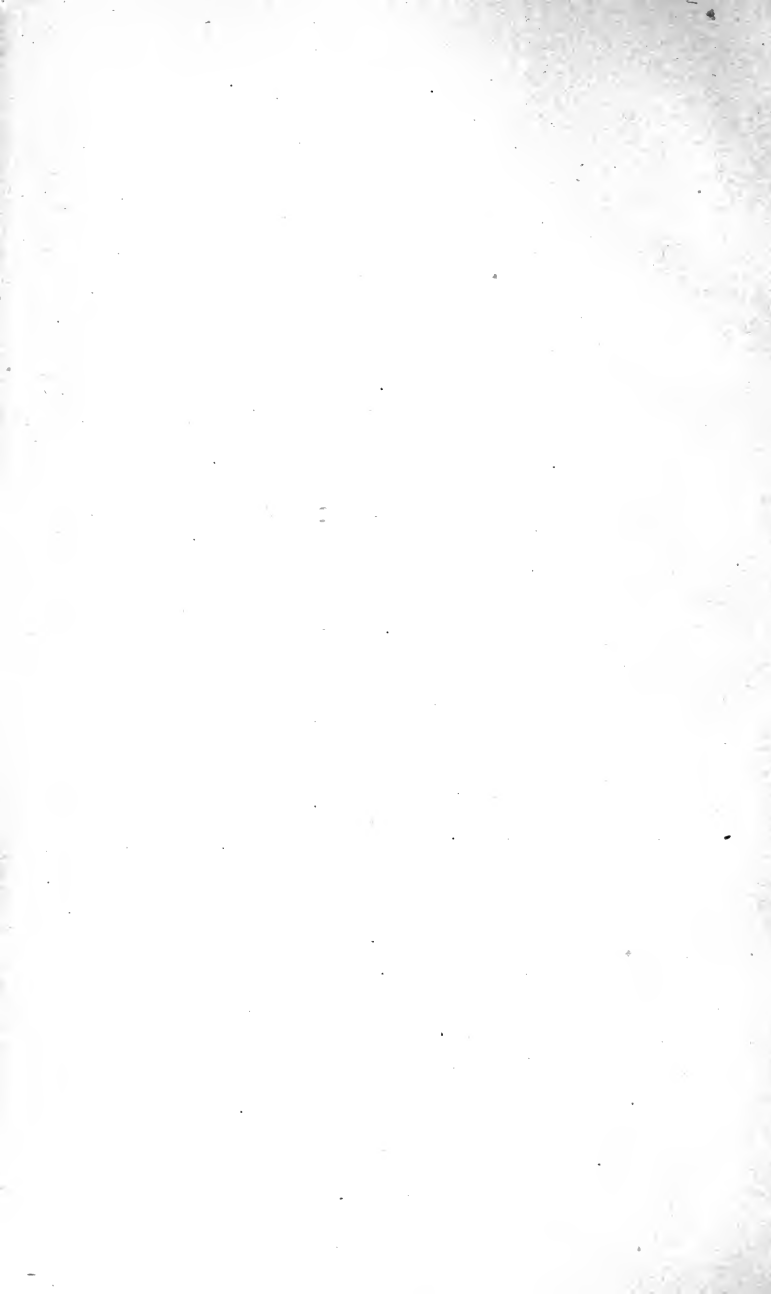
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PROPERTY

AND

GENERAL REGULATIONS

OF THE

SIGNAL CORPS,

U. S. ARMY.

U.S. Signal Office



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WAR DEPARTMENT.

Document No. 82.

OFFICE OF THE CHIEF SIGNAL OFFICER.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That, from and after the passage of this act, every officer of the Signal Corps, every non-commissioned officer or private of the Signal Corps, and all other officers, agents, or persons who now have in possession, or may hereafter receive or may be entrusted with any stores or supplies, shall, quarterly or more often, if so directed, and in such manner and on such forms as may be prescribed by the Chief Signal Officer, make true and correct returns to the Chief Signal Officers of all Signal Service property and all other supplies and stores of every kind received by or entrusted to them and each of them, or which may, in any manner, come into their and each of their possession or charge. The Chief Signal Officer, subject to the approval of the Secretary of War, is hereby authorized and directed to draw up and enforce in his Bureau a system of rules and regulations for the government of the Signal Bureau, and of all persons in said Bureau, and for the safe keeping and preservation of all Signal Service property of every kind, and to DIRECT and PRESCRIBE the KIND, NUMBER, AND FORM, of all returns and reports, and to enforce compliance therewith.

Approved Oct. 12, 1888.





PROPERTY AND GENERAL REGULATIONS OF THE SIGNAL CORPS.

I.—PROPERTY ACCOUNTABILITY.

1. Every officer of the Army and enlisted man of the Signal Corps, and all other persons who now have in possession or who may hereafter receive, or may be intrusted with any stores or supplies pertaining to the Signal Corps, are responsible therefor, and will be held strictly accountable for all such property for which they may have given their receipts.

2. Until otherwise directed by the Secretary of War, property returns are to be made on the 31st day of December and on the 30th day of June, of each year, and all returns for Signal Corps property begin and end at those times; except, where in the case of officers, enlisted men, or others responsible for property, by reason of transfer, change of station, or leaving the service, it becomes necessary to close their accountability at an earlier date. A return, with all its accompanying papers, must be forwarded *direct* to the office of the Chief Signal Officer, Washington, D. C., within *twenty* (20) *days* after the termination of the accounting period.

3. When any person accountable for Signal Corps property is relieved from the charge of the same, he will turn over to his successor *all* property and stores, for which he is officially accountable, and will take duplicate receipts therefor on the forms furnished for the purpose, one copy of which he will inclose as a voucher to his final return of property, and the other will be retained.

The final property return will be made out in precisely the same manner as the regular semiannual report.

4. The retained return, showing accountability for property, pertains to the person making it, and will not be considered a part of the records at the station where the officer or man is serving.

5. Letters of transmittal are not required in forwarding property or other returns, unless there is some particular fact relative to the papers to which it is desired to specially invite attention.

6. When it is not possible to render a return within the limit of time prescribed, owing to the nonreceipt of certain vouchers, the return itself must not be held, but will be mailed to the Chief Signal Officer, with a letter stating what vouchers are missing, with reason therefor; said missing vouchers to be forwarded later, when received.

7. The person signing a receipt for Signal Corps property received by him, should satisfy himself that the *condition* of the articles is *correctly stated* thereon, otherwise he may become accountable for unserviceable condition, or shortage, of component parts of

articles transferred to him. Receipts should be returned to the issuing officer, if correct, within ten days from the date the property was received.

8. Officers and others accountable must verify returns by an *actual count* of all the articles on hand at the time the return is made.

Whenever any discrepancy exists between the actual count of the property and that as shown by the returns, such action will be taken as is enjoined by Army Regulations.

9. Enlisted men of the Signal Corps, at military posts, becoming responsible for public property under provisions of act of Congress (Pub. 311) approved October 12, 1888, shall, when stores or supplies shipped to them are received in unserviceable condition, or when deficient in number and quality, examine them in such manner as is prescribed in paragraphs 668 and 669, Army Regulations. In case of damage or deficiency appearing, they will then apply in writing to their immediate commanding officer for a board of survey to determine the responsibility for injury or loss occurring. The application should recite that, having received, or being accountable for (as the case may be), public property under the provisions of the act of Congress above quoted, application is made under paragraph 684, Army Regulations, in order to determine whether such public property has been lost or damaged by the neglect or fault of the soldier thus applying.

Enlisted men of the Signal Corps serving alone at isolated stations will, under similar circumstances,

make immediate report in detail of the facts to their immediate commanding officers and ask that appropriate action may be taken.

10. All property transferred from one officer, or enlisted man of the Signal Corps, to another, will be invoiced; the invoices in duplicate to be filed by the person to whom sent with the copies of his return, the corresponding receipts in duplicate to be filed with the returns of the person issuing the property. In case of shipments through the Quartermaster's Department, the invoices will be made in triplicate, one copy to be sent by mail direct to the officer or sergeant to whom the property has been transferred, and two copies to be delivered to the Quartermaster, one of which will accompany the bill of lading to destination; receipts in duplicate for the package will be taken from the Quartermaster.

11. All articles purchased upon proper authority by any officer, enlisted man of Signal Corps, or other employee on stations outside of Washington, D. C., for official use, will be regularly invoiced to the person purchasing, upon receipt, at the office of the Chief Signal Officer or department signal officer charged with the disbursement of Signal Corps funds, of the proper certified bill, which must accompany the account for settlement.

12. All property received must be taken up on the returns, whether invoiced or not, except forms and stationery. Should any article of property be received, either by purchase or otherwise, and not included in

invoices, special attention should be called to said fact by letter; the articles should be taken up and a footnote made showing that they were taken up without invoices. It may happen in some cases that invoices of articles sent are received while the articles themselves may not have been received; in such a case the articles should *not* be taken up until they are actually received, otherwise, the person doing so will make himself responsible for such articles while they may never reach him.

13. A special report by letter should be made of all articles not received within a reasonable time after the person to whom sent is notified of their shipment.

14. Public property and labor hired for the public use must not be perverted to any use whatsoever not authorized by the regulations of the service.

15. Articles of Signal Corps property pertaining to military telegraph lines must not be transferred from one office to another without special direction from the Chief Signal Officer or officer in immediate charge of the line.

16. When any article of public property not of an expendable nature, for which any officer or other person is responsible, becomes unfit for service from any cause whatever and is not worth expense of repair, he will report the facts in the case and submit the articles for action to the inspector first visiting the station, excepting telescopes, field glasses, heliographs, and telephones (see par. 1546, Army Regulations). A copy of the inventory and inspection report must accompany

the return rendered to the Chief Signal Officer, on which the property is accounted for.

17. When it is found that any article of Signal Corps property is unserviceable, but worth the expense of repair, a detailed report will be made of the nature of the unserviceability of the article, with an estimate of the cost of repair, and whether or not said repairs can be made at or near the station or post.

18. When an inspector recommends that certain articles of Signal Corps property be turned into a depot for repairs, the accountable officer will report such fact to the department signal officer and await instructions as to the disposition of the same.

19. All public property of every description ordered to be returned to the office of the Chief Signal Officer must be plainly marked on the package with the name of the station whence it comes, the weight of the package, if known, and the nature of the contents. The packages must be addressed to the "Chief Signal Officer, care depot quartermaster, Washington, D. C.," when sent by quartermaster transportation; otherwise, they will be marked simply "Chief Signal Officer, Washington, D. C."

20. When a station is discontinued, the disposition of the property, other than that for which a signal officer is responsible, will be ordered from the office of the Chief Signal Officer or department signal officer, and, in any event, the officer or other person in charge will be held responsible that each article is properly disposed of as ordered.

21. Whenever property is ordered shipped through the Quartermaster's Department, it should be properly packed, without expense, if possible.

22. In no case will any unexpendable article of public property be thrown away on account of its becoming unserviceable, but it will be held until orders are received from the proper authority concerning its disposition.

23. Officers in charge of military telegraph lines will account for all property at their stations and for all sections of line (in miles) radiating therefrom. The officers in charge will designate the several repair sections on the lines under their charge, and the enlisted men or civilian operators in charge of such repair sections will account for all property at their stations and the line (in miles) on their sections.

24. In all cases, in making up returns, the headings should never be altered or changed, but when articles other than those enumerated in the printed headings are at the station, they should be alphabetically inserted in the blank lines for that purpose on the return.

Where it is not practicable to insert the names alphabetically, they will be so arranged in the blank space at the end of the return.

25. All articles received must be accounted for on returns *identically as invoiced*, and the nomenclature will not be changed without specific authority of the Chief Signal Officer.

26. Articles of like name but of different pattern, when invoiced separately, will not be combined; thus, 20-ohm, 4-ohm, and main-line sounders must not be

carried as so many "sounders," but the total of each will be carried under its appropriate heading.

27. The official numbers of field glasses, telescopes, telephones, and transmitters, and other instruments having serial numbers must in all cases be given on the return.

28. Where there is a local telegraph or telephone line at a post, its length in miles or feet must be given on the return under the heading "*Line*," otherwise telegraph material or supplies will not be furnished, or certificate of expenditure dropping such supplies as used will not be accepted, on the assumption that there is no line at the post.

29. Rented telephones and transmitters will be carried on property returns in *red* ink in order to distinguish them from those which are owned by the Government.

Call-bells, magneto, which may be invoiced at the same time as rented instruments, belong to the Government, and in all cases must be taken up separately on returns in black ink, as other Government property.

30. Enlisted men of the Signal Corps serving at military posts, before forwarding their property returns will have certificate of expenditure approved by post commander; those not on duty at military posts, and accountable for property, will forward the certificate to the department signal officer for approval, in season, so that it can be returned in time to be included with his return when rendered.

31. An officer or other person whom a board of survey or other competent authority has adjudged responsible for the loss, destruction, or shortage of any article or parts of articles of Signal Corps property, will be required to cover the money value thereof into the United States Treasury before a clearance will be furnished. This may be done either by forwarding the money to the Disbursing Officer of the Signal Corps, Washington, D. C., who will deposit the money on account of the responsible officer, or the money may be deposited in some Government depository to the credit of "Miscellaneous receipts, refundment for ---(lost)--- property, Signal Service of the Army, 189---" (giving year in which the fiscal year ends.) In the latter case, an account-current must be rendered to this office for examination and transmission to the accounting officers of the Treasury Department.

32. When Signal Corps property is condemned and ordered sold, due notice of the sale will be given (A. R. 505) and the proceeds will be accounted for in the manner prescribed in A. R. 615. The accountable officer will then render to the Chief Signal Officer an account-current covering the transaction, inclosing therewith as vouchers copies of the advertisement and authority for the sale, with notation of the disposition made of the proceeds.

33. To save time and space, a few articles of Signal Corps property are invoiced as "complete." Officers, enlisted men of the Signal Corps, and other persons receiving such articles should satisfy themselves that *all*

the parts which go to make up the whole are present before signing receipt therefor. When any parts are missing, a memorandum should be made on the receipt specifically designating such parts as are missing. The accountable officer will then be held responsible for the shortage.

34. The following are the principal articles which are invoiced as "complete:"

BOXES, call, complete, consist of the magneto call-bell apparatus, and (except the old style) are attached to a backboard with battery box containing one or more cells of battery.

CELLS, battery, complete, consist of the glass or lead jar, with zinc, copper, or carbon elements.

"Jars" battery, which are merely the glass or lead jar without copper, zinc, or carbon elements, should not be confounded with "cells" battery.

HELIOGRAPHS, field, complete, consist of: A sole-leather pouch, containing one sun mirror and one station mirror, inclosed in a wooden box; one screen; one sighting rod; one screw-driver. A smaller pouch, sliding by two loops upon the strap of the larger, containing one mirror bar. A skeleton case, containing two tripods.

PULLEYS and tackle, complete, consist of two pulleys, each with a vice or some form of clamping device for grasping the wire, and about 60 feet of rope.

STAFFS, jointed, complete, consist of three joints of staff, *i. e.*, tip, middle, and butt joints.



STAFFS, practice kit, consist of two joints of staff, *i. e.*, tip and butt joints.

VICES and straps, complete, consist of a small hand vise and one leather strap.

35. Signal Corps property is arranged into two general divisions, viz: that of an "unexpendable" character, such as instruments, tools, etc., and that of an "expendable" nature, such as bluestone, coppers, zincs, etc. The term "expendable," as applied to property, signifies that the property so designated is of a character to be actually consumed.

36. The following list comprises articles of Signal Corps property which, when received, must be accounted for on property returns, but when consumed or rendered unserviceable, may be dropped on proper certificate of expenditure (Form No. 205), without the formality of submitting them for the action of an inspector:

Binders, Conant.	Calendars.
Bluestone (sulphate of copper).	Cans, assorted, tin.
Boards, letter-clip.	Cells, battery.
Books, office record.	Chamois skins.
Books, tariff.	Chemicals, photographic.
Bowls, dampening.	Chimneys, lamp.
Boxes, battery.	Coal.
Brackets, insulator.	Compound, Chatterton.
Brooms.	Connectors, battery.
Brushes, assorted.	Coppers, battery.
Buttons, push.	Cords, telephone.
Cable, conductor.	Cross-arms, wood or iron.
	Cups, tin.

Cups, sponge.	Pins.
Disks, cipher.	Plates, ground.
Dusters, feather.	Plates, photographic.
Erasers, steel.	Plugs, insulator.
Files, machinists'.	Pokers.
Files, paper or office.	Poles, telegraph.
Films, photographic.	Polish, stove.
Flags.	Posts, binding.
Folders, paper.	Racks, pen.
Foot-rests.	Ribbon, typewriter.
Glasses, eye and case.	Rope.
Goblets or tumblers.	Rulers.
Hangers, battery.	Sal ammoniac.
Hooks, message.	Screws, assorted.
Inkstands.	Separators, rubber.
Insulators, glass.	Shades, gas or lamp.
Insulators, porcelain.	Sheets, copying.
Jars, battery.	Signs, office.
Lances.	Soap.
Lights, Coston.	Solder.
Mercury.	Spikes.
Mirrors for heliographs.	Stamps, postage.
Mucilage cups.	Stationery.
Nails.	Stove-pipe, joints of.
Needles.	Straps, for climbers and vises.
Oil.	Straps, large, small, and -hitching.
Pads, ink.	Styli.
Paper.	Syringes, battery.
Paper, photographic.	
Pens, ruling.	

Tacks.	Turpentine.
Tape, kerite.	Vessels or dishes, earthen,
Tin.	wood ware, and tin.
Towels.	Wire.
Tubing, rubber.	Zincs, battery.

37. Certificates of expenditure will only be accepted as proper vouchers when the articles given in the list of expendable have actually been consumed, or have become entirely unserviceable.

38. Battery-cells and jars; connectors, battery; push-buttons, etc., when taken from reserve and placed in a circuit are not considered as expended, as they are then merely performing the purpose for which they were furnished, and they will not be dropped from returns unless *broken*, or absolutely unserviceable.

39. Poles, wire, insulators, and other telegraph line material when used in the construction of a line may be dropped, but such line must in all cases appear on the return in miles and fractions, or in feet (see par. 28): when the line is shortened, or taken down, the material recovered must be again taken up and accounted for.

40. Articles (whether expendable or unexpendable) lost or stolen must *not* be entered on certificate of expenditure, but should be covered by a special certificate (Form 206) setting forth the facts in the case, and when the aggregate money value of the articles lost or stolen exceeds five dollars, must be submitted for the action of a board of survey.

41. Station record books, such as letters sent, copying, check ledgers, etc., as soon as they are opened and



put to use, can be dropped from property returns on certificate of expenditure as "used in service."

42. Iron poles not actually in use on the lines will be accounted for by the officer in charge when the poles are at his station; otherwise by the enlisted men or civilian operators in charge of the repair sections.

Whenever one of these poles is placed upon the line it will be dropped on the next certificate of expenditure. When a line is abandoned and an officer is directed to recover the poles on such line, he will take up and account for the number actually recovered.

43. Where errors are found during the examination of property returns at the office of the Chief Signal Officer, the accountable officer will be immediately notified thereof, and where practicable, subsequent correspondence will be by indorsement on the original communication. In connection with discrepancies, *corrected* returns will *not* be rendered unless specially called for, as a corrected return necessitates the reexamination and checking of each item on the new return.

44. Upon receipt of a letter of notification of errors, action should be taken thereon at once, as owing to frequent transfers of accountability, especially with post signal officers, a lapse of time often entails considerable correspondence and difficulty in adjusting discrepancies which at the time may be easily corrected.

45. When an officer, enlisted man, or other employee having Signal Corps property in his possession, or being accountable therefor, leaves the service of the United States, final payment will not be made to such officer,

enlisted man, or other employee until full and satisfactory evidence is furnished that the property, with which he may have been intrusted, has been duly accounted for.

46. Officers of the Army detailed for duty at military colleges who are accountable for Signal Corps property that has become unserviceable, are authorized to submit the same for the action of an Inspector as provided for in pars. 879 and 1546, A. R.

47. In order to reduce to a minimum the clerical work at the office of the Chief Signal Officer, incident to the examination of property returns, the post signal officer shall be accountable for all Signal Corps property at a military post or station. Should another officer desire to retain certain articles of Signal Corps property for official use, he may be authorized to obtain them from the signal officer on memorandum receipt. These instructions, however, do not apply to department signal officers, or to enlisted men of the Signal Corps on duty at stations where there is a military telegraph office.

II.—GENERAL INSTRUCTIONS.

48. Enlisted men of the Signal Corps are expected to perform all duties in connection with the transmission of military information for the use of the Army. At military posts it is discretionary with post commanders to require them to assist the post signal officers in the matter of signal instruction, care of Signal Corps property, etc., as the former may deem the public interests or special conditions require.

49. In answering any communication from the Chief Signal Officer, reference will always be made at the beginning of the letter to the Signal Office serial number or mark (which will be found at the upper left-hand corner of the sheet), as well as the date of said letter. For example: "Replying to your letter of February 12, 1897, No. 5212."

50. Oil required for signaling purposes is not furnished by the Signal Corps, but is obtained on requisition from the post quartermaster.

51. Practice kits are not issued to post signal officers, but only to officers detailed for duty at military colleges. A practice kit consists of one canvass case holding two joints of staff, and one 2-foot red and one 2-foot white flag, each item being carried separately on returns.

52. Requisitions for Signal Corps stores and supplies must be forwarded through military channels to the department signal officer for transmission to the Chief Signal Officer of the Army.

53. The following price list of Signal Corps property is published for the information of the Army. The price of any article not on this list will be furnished upon application to the Chief Signal Officer.

PRICE LIST OF SIGNAL CORPS PROPERTY.

	<i>Price.</i>		<i>Price.</i>
Anemometers, with cups complete-----	\$20.00	Bars, digging-----	\$1.25
Axes-----	.68	Bars, ground-----	1.50
Barometers, aneroid-----	12.00	Bells, electric, 4-ohm-----	.75
Barometers, mercurial-----	25.00	Bells, electric, 20-ohm-----	2.00
		Belts, tool-----	.75

PRICE LIST OF SIGNAL CORPS PROPERTY—continued.

	<i>Price.</i>		<i>Price.</i>
Boards, letter-clip-----	\$0.30	Cross-arms, iron-----	\$0.77
Books, Dictionary, Webster's		Disks, cipher-----	.12
Counting-House-----	2.10	Drivers, insulator plug-----	1.50
Bowls, dampening, with		Dusters, feather-----	.48
brushes-----	.63	Erasers, steel-----	.32
Boxes, call, magneto-----	9.50	Extinguishers, flying-----	.30
Boxes, japanned-----	.66	Extinguishers, foot-----	.30
Brackets, insulator, wood---	.03 $\frac{1}{2}$	Flags, 4-foot red-----	.46
Brushes, battery-----	.25	Flags, 4-foot white-----	.36
Brushes, dampening-----	.25	Flags, 2-foot red-----	.16
Brushes, dust-----	.40	Flags, 2-foot white-----	.12
Brushes, typewriter-----	.25	Folders, paper-----	.45
Buckets or pails, galvanized		Funnels, copper-----	.15
iron-----	.65	Furnaces, tinner's-----	2.00
Butt-joints for lances-----	.55	Glasses, eye, colored, with	
Buttons, push-----	.08	cases, large-----	1.25
Buzzers, electric-----	1.25	Glasses, eye, colored, with	
Cans, copper, 5-gallon-----	8.50	cases, small-----	.25
Cans, oil, tin, $\frac{1}{2}$ gallon-----	.25	Glasses, field, aluminum	
Canteens and straps, copper,		frame, with cases, slings,	
1-gallon-----	2.15	and straps (Imperial Opti-	
Carts, hand reel-----	150.00	cal Company)-----	22.75
Cases, canvass, for signal		Glasses, field, aluminum	
blanks-----	.68	frame, with cases, slings,	
Cases, canvass, and straps---	5.00	and straps (Voigtlander	
Cells, battery, dry, "Burn-		& Sohn)-----	39.95
ley"-----	.75	Glasses, field, brass frames,	
Cells, battery, "Gethius"---	1.86	with cases and straps-----	9.95
Cells, battery, "Le Clanche"	.69	Handles, with tools-----	1.25
Chamois skins-----	.45	Harness, reel cart-----	7.00
Clamps, splicing-----	1.35	Hatchets-----	.40
Climbers and straps, pair---	1.35	Haversacks-----	1.12
Clocks, marine-----	2.57	Heliographs, field, complete,	
Clocks, regulator-----	13.50	model 1892-----	85.00
Compasses-----	.50	Heliographs, field, complete	28.75
Compasses, prismatic-----	11.25	Heliographs, "Purcell &	
Compasses, with clinometer---	2.80	Grugan"-----	25.00
Connectors, battery-----	.06	Heliographs, station, com-	
Coolers, water-----	6.80	plete-----	45.50
Coppers, battery-----	.04 $\frac{1}{2}$	Holders, telescope-----	2.06
Cords, telephone-----	.15	Hydrometers-----	.35

PRICE LIST OF SIGNAL CORPS PROPERTY—continued.

	<i>Price.</i>		<i>Price.</i>
Insulators, glass, "Double Petticoat"-----	\$0.03 $\frac{1}{2}$	Rods, sighting, helio-----	\$1.50
Insulators, glass, "Regular Pattern"-----	.025 $\frac{5}{8}$	Saw, hand-----	1.10
Insulators, glass, "Pony"---	.013 $\frac{1}{4}$	Scissors-----	.20
Insulators, porcelain-----	.021 $\frac{1}{2}$	Screw-drivers, 10-inch-----	.40
Insulators, hard-rubber, "Pig-tail"-----	.22 $\frac{6}{10}$	Screw-drivers, 6-inch-----	.25
Insulators, hard-rubber, slot and pin-----	.237 $\frac{7}{8}$	Screw-drivers, heliograph---	.35
Insulators, hard-rubber, other styles-----	.241 $\frac{1}{2}$	Shades, flame, flying-----	.30
Jars, battery, glass, Callaud No. 1-----	.12	Shades, flame, foot-----	.30
Jars, battery, Eagle (lead)---	.68	Shears-----	.60
Keys, telegraph-----	1.25	Shovels, spoon, telegraph---	1.24
Kits, practice (case and 2 joints of staff)-----	1.00	Sounders, telegraph-----	1.25
Lamps, Rochester, complete---	2.30	Sounders, telegraph, box-----	5.00
Lances, wood-----	.68	Sounders, telegraph, "Main Line"-----	10.00
Lanterns, signal candle-----	4.85	Staffs, jointed (3 joints) per set-----	1.40
Mirrors, heliograph-----	.49	Straps, small-----	.15
Pans, dust-----	.25	Styli, agate-----	.21
Pliers, 8-inch, pair-----	1.47	Switches, telegraph, with cut-out, lightning-arrester, and ground, large-----	1.50
Pliers, 4-inch, pair-----	.43	Switches, telegraph, small, with ground-----	.45
Pliers, small-----	.23	Syringes, battery-----	1.40
Plugs, insulator, wood-----	.05	Tappers, line-----	3.50
Poles, telegraph, iron-----	2.00	Telephones, service-----	5.00
Presses, copying, with stands	8.60	Telephones, Berthou-Adier---	12.00
Psychrometers, sling, complete-----	4.50	Telescopes and straps, brass frames-----	11.85
Pulleys and tackle, with vises, complete-----	1.25	Thermometer, maximum and minimum, mounted, complete-----	6.67
Range-finders-----	15.00	Torches, flying-----	2.38
Reels, with outpost cable-----	44.95	Torches, foot-----	2.25
Register, anemometer (velocity and stop-watch)-----	43.50	Trimmers, tree-----	2.00
Register, anemometer-----	25.00	Vises and straps-----	1.23
Relays, telegraph-----	3.35	Wands-----	.011 $\frac{1}{2}$
Relays, box sounders-----	5.00	Wicking, per pound-----	.121 $\frac{1}{2}$
Relays, telegraph, pocket---	7.60	Wind-vanes, small, complete	10.00
		Wire, iron, galvanized, No. 9, per pound-----	.031 $\frac{1}{2}$

PRICE LIST OF SIGNAL CORPS PROPERTY—continued.

	Price.		Price.
Wire, iron, galvanized, No.		Wrenches, splicing-----	.43
14, per pound-----	.047 $\frac{7}{8}$	Zincs, battery, Callaud-----	.12
Wire, office, No. 18, copper,		Zincs, battery, Eagle-----	.20
insulated, per pound-----	.23	Zincs, battery, Le Clanche--	.05
Wormers-----	.15		

54. The attention of individuals and firms rendering services or material to the Signal Corps of the Army is invited to the following points in preparing bills and vouchers. These requirements are rendered absolutely necessary by the refusal of the accounting officers of the Treasury Department to allow credit for such expenditures unless these regulations are strictly followed:

Bills must invariably be made in *duplicate*, and bear on their face the word "Correct," followed by the autographic signature of the firm, by a member of the firm; and the fact that the person signing is a member of the firm must be stated. In the case of a corporation, the autographic signature of the treasurer, or other officer authorized to receipt for money. The words "Original" or "Duplicate" must *not* be written or printed on the bills.

Where the same party furnishes *supplies* and also renders *services*, *separate* bills must be rendered.

Bills covering purchases in open market, or services rendered, must bear upon their face the certificate of an officer as follows: "Procured in open market, at the lowest obtainable rates, the amount involved being so small as not to warrant the expense of advertising and

the opening of proposals, and the price charged being reasonable and as low as charged by regular dealers in this locality to private individuals."

55. The following supplies of forms will be issued annually: For semiannual reports, 6; monthly, 30; weekly, 125. Other forms will be issued as circumstances may require, with wastage allowance ranging from 20 per cent to 5 per cent. The forms specified are for the use of post signal officers, and will be sent with the annual supplies in December for use during the succeeding calendar year.

LIST OF FORMS AS PER PAR. 1552 A. R.

- No. 200. Semiannual Return of Property (regular).
- No. 201. Semiannual Return of Property (abridged),
for use of officers on duty at military colleges and those having only a few articles.
- No. 202. Invoice or Receipt (combined).
- No. 203. Invoice.
- No. 204. Receipt.
- No. 205. Certificate of Expenditure.
- No. 206. Certificate of Property Lost or Destroyed.
- No. 214. Special Requisition.
- No. 216. Report of Instruction and Practice in Military Signaling.
- No. 217. U. S. Army Field-Signal Blank.

56. A regulation supply of stationery, etc., for post signal officers and military telegraph offices, is fixed and published by the Chief Signal Officer in a classified annual supply table. Issues for current signal and



telegraph practice, of quantities fixed and articles enumerated in the supply table, may be dropped as expended in the public service. Special issues will be made only on the recommendation of the department signal officer. Articles not actually used in such practice will be turned over by signal officers and others to their authorized successors. These articles are forwarded without invoice and will not be taken up on returns.

57. CLASSIFIED ANNUAL SUPPLY TABLE.

Articles.	MILITARY POSTS.		MILITARY TELEGRAPH OFFICES.			
	Two companies (or less).	Each additional company.	First class.	Second class.	Third class.	Fourth class (re-pair).
Bands, rubber (No. 18)-----gross--	1	0	2	1	1	0
Books, blank, small-----	0	0	2	1	1	0
Envelopes, large, franked-----	16	12	125	75	50	25
Envelopes, message-----	75	25	3,000	2,000	1,000	100
Envelopes, linen-lined, franked*--	0	0	50	36	25	0
Erasers, rubber, small-----	1	0	2	2	1	1
Matches, wind-----boxes--	6	1	0	0	0	0
Pads, message-----	12	3	0	0	0	0
Pads, scratch-----	10	3	0	0	0	0
Paper, blotting-----cut--	25	12	50	25	25	12
Paper, legal cap-----quires--	0	0	2	1	2	$\frac{1}{2}$
Paper, letter, ruled-----quires--	2	$\frac{1}{4}$	4	3	2	1
Paper, manila, copying-----pounds--	0	0	8	4	2	1
Paper, telegraph-----packages--	3	1	4	3	2	1
Paper, typewriter†-----quires--	0	0	10	5	5	0
Paper, wrapping-----quires--	0	0	2	2	1	1
Penholders-----	2	0	4	4	3	2
Pencils, black-lead-----	20	4	36	24	18	12
Pens-----	20	2	144	108	72	24
Pins-----rolls--	0	0	2	1	1	1
Sponge, small-----pieces--	0	0	2	2	1	1
Tape-----rolls--	1	0	2	1	1	0
Wands-----	12	2	2	2	2	2
Wicking, torch-----pounds--	2	$\frac{1}{2}$	0	0	0	0

* Furnished only to stations transmitting line receipts.

† Furnished only to stations having typewriters.

58. The forms, stationery, and supplies above tabulated will be issued in December for the next calendar year. The number of companies, troops, and batteries at each post will be determined from the published list issued by the Adjutant General of the Army.

59. All transmitters and receivers furnished by the American Bell Telephone Company to this service are their property and are held by the Signal Corps under life rental upon the following conditions:

“For use of the United States Signal Service only, and not to be used in connection with lines, instruments, or service of other parties.”

From the above it will be seen that such instruments must not be used in connection with commercial telephone exchanges, or in any manner switched onto lines not distinctly Government lines.

60. Telephones provided by the Signal Corps are primarily for use on rifle and artillery ranges; but when not in use on said ranges they can be utilized for other post purposes.

61. The act of Congress approved June 8, 1896, limits the weight of all mail packages to 4 pounds: when articles are ordered transferred from one station to another, or to this office, by mail, care must be exercised to see that the packages do not exceed this weight; where this weight would be exceeded in one package, and it is possible to divide the articles, two or more packages must be made.

BATTERIES.

62. *Directions for setting up the Callaud or Gravity battery.*—Unfold the copper strip, so as to form a cross,

and place it in the bottom of the jar, allowing the covered wire to project over the top. Suspend the zinc about 4 inches above the copper from the tripod, which has a hole to receive the wire from the copper of the next cup. (The "crow-foot" zinc is provided with a shank terminating in a hook, by means of which it is suspended on the edge of the jar. There is a screw on the zinc for the purpose of attaching wire.) Pour clean water into the jar, so as to cover the zinc. Then drop in enough blue vitriol (sulphate of copper) in small lumps to nearly cover the top of the copper.

The full strength of the battery may be developed at once by drawing about half a pint per cell of the zinc solution from a battery already in use, or by putting into the liquid 4 or 5 ounces of pulverized sulphate of zinc. Blue vitriol should be dropped into the jar as it is consumed, care being taken that it goes to the bottom. The blue color will be kept as high as the top of the copper, but must never reach the zinc. When the quantity of sulphate of zinc in solution becomes too great, a portion of the top of the liquid will be drawn with a syringe and replaced with clear water. A hydrometer is convenient to test the strength of this solution. When the specific gravity is less than 15 degrees there is too little sulphate of zinc; when it is 30 degrees there is too much in solution and it will be diluted. When the zincs become coated so as to interfere with the action of the battery they will be taken out and scraped clean and washed.

The binding screws and the ends of the small connecting wires in either battery will be kept scrupulously

clean to insure good connections, and the cells kept at least 1 inch apart to prevent contact. The cells should rest on a *painted* dry wooden base to insulate them from each other and from the earth, and care be taken to prevent any escape of liquid by which a connection might be formed between the jars.

63. At the termini of lines or circuits good ground connections are necessary, and may be prepared by burying, *in a perpendicular position*, a copper plate 2 or 3 feet square in *moist* earth, or utilizing gas or water pipes to which a stout copper wire is securely soldered. At way offices a sufficiently good ground wire may be made by burying the end of a stout copper wire 3 or 4 feet deep into *moist* earth.

64. No battery should be permitted to freeze, for while frozen the current is very much impaired, or altogether suspended. Heat being a promoter of chemical action, a battery, while warm, works most vigorously.

65. Batteries should be examined each week and the cells carefully wiped off with a moist cloth. Should any cell be found to leak or be otherwise defective, it will be at once removed and repaired or replaced with a new one, as a defective cell seriously interferes with the effectiveness of the entire battery.

RULES FOR ESTIMATING BATTERY SUPPLIES, ETC.

66. In estimating the amount of battery material likely to be required, the following general rules will be observed:

The average life of a battery zinc is two months, or at the rate of six zincs per annum for each cell of battery.

A battery copper will last from six to eight months, until such time as the insulation on the wire connection becomes defective or the copper badly incrustated; a fair average is two coppers per annum per cell.

A main-line battery will not consume more than $1\frac{1}{2}$ pounds of bluestone per month per cell; a local battery not more than 2 pounds per month per cell.

About 4 ounces of sal ammoniac is a charge for a Le Clanche cell, and should last four or five months.

One pound of office wire contains about 100 feet. Nos. 9 and 14 galvanized-iron wire are put up in half-mile coils

CARE AND PRESERVATION OF BICYCLES.

67. The attention of enlisted men of the Signal Corps, and other persons having Signal Corps bicycles in their possession, is invited to the following instructions:

Persons accountable for bicycles will be held to a strict accountability for the condition in which they are kept, as upon the care which any machine receives largely depends the satisfaction and duration of its service.

After use, the bicycle should be carefully wiped to remove all dirt, care being taken that it does not work into the bearings; particular attention should be given to the chain, and no attempt should be made to use the machine when the chain or the sprocket wheels are clogged with dirt or grit.

In no case should mud be allowed to remain on a tire, as in drying it contracts and cracks the rubber.



Under no circumstances should a bicycle be left exposed to the weather when not in use, nor should a machine be put away in a wet condition.

The lustre of all parts, whether nickerled, enameled, or plain steel, is most easily kept up by carefully rubbing with a dry cloth or chamois skin.

Oil should not be allowed to remain on the exterior part of the machine, as it is an enemy to either nickel, enamel, or rubber, and when found running from an overflowed bearing should be removed at once.

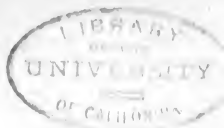
At least twice a year thoroughly clean the bearings, removing the shaft and cones and the bearings of both wheels, and washing all parts in kerosene oil. A temporary cleaning of the bearings may be made by placing the machine on its side and injecting kerosene oil, benzine, or gasoline into the bearings and allow it to run out beneath, at the same time revolving the wheel or crank shaft.

For oiling use a good quality of lubricating oil. Do not use kerosene for a lubricant, as it rapidly evaporates, leaving the parts dry. Oil should be used very sparingly, a few drops being sufficient.

A broken ball in a bearing should be removed at once. It is usually detected by a harsh grating sound. Failure to do this will result in damaged cases, cones, and balls.

Vaseline and graphite have been used to good advantage as a lubricant for the chain, but a regular chain lubricant will be furnished on requisition.

Repair kits are furnished with each bicycle, and must at all times be kept complete, timely requisition being made for such items as have been used.



Bicycles, when unserviceable, will not be submitted for the action of an inspector without express authority from the Chief Signal Officer.

68. The following act of Congress is published for the information and government of all concerned:

AN ACT to protect lines of telegraph constructed or used by the United States from malicious injury and obstruction.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That any person or persons who shall willfully or maliciously injure or destroy any of the works or property or material of any telegraphic line constructed and owned, or in process of construction, by the United States, or that may be hereafter constructed and owned or occupied and controlled by the United States, or who shall willfully and maliciously interfere in any way with the working or use of any such telegraphic line, or who shall willfully or maliciously obstruct, hinder, or delay the transmission of any communication over any such telegraphic line, shall be deemed guilty of a misdemeanor, and, on conviction thereof in any district court of the United States having jurisdiction of the same, shall be punished by a fine of not less than one hundred nor more than one thousand dollars, or with imprisonment for a term not exceeding three years, or with both, in the discretion of the court.

Approved June 23, 1874.

All persons are warned that any injury to, or unauthorized interference with, the United States military telegraph lines will be prosecuted under the Act of Congress approved June 23, 1874, and a reward of one hundred dollars is offered for information leading to the arrest and conviction of any party or parties under this Act.

69. Communications, forms, and other official papers forwarded to the office of the Chief Signal Officer must have the brief fold properly filled up.

70. All official communications to this office should be addressed "Chief Signal Officer of the Army, Washington, D. C." In no case should official communications be addressed to the Chief Signal Officer by name, or to subordinates in his office.

71. Officers in charge of companies or detachments of Signal Corps troops charged with the duty of rendering muster rolls to the Adjutant General of the Army, will cause a copy thereof to be sent to the Chief Signal Officer for the information of his office.

72. Papers covering the enlistment or reenlistment of Signal Corps men must be made in duplicate, and both copies forwarded at once to the Chief Signal Officer of the Army, who is required by the Regulations to render a recruiting return to the Adjutant General.

73. Instruments, and all articles of value, sent through the mails must be registered; postage stamps for this purpose will be furnished by the Quartermaster's Department.

74. A monthly personal report will be rendered to the Chief Signal Officer by all detached enlisted men of the Signal Corps, which report will be forwarded through post signal officers to the post commander, who will forward the same through department headquarters. When enlisted men are serving in detachments, a consolidated report will be made by the signal officer in charge, which will contain a list of all Signal Corps men serving under his command during the month, with such remarks as may be deemed necessary to complete the individual card records of the men at this office.

75. In addition to the special directions herein promulgated, the Army Regulations, orders of the War Department, and decisions of the accounting officers of the Treasury Department relating to the accountability for public property, must be strictly followed.

A. W. GREELY,
Brigadier General,
Chief Signal Officer, U. S. A.





INDEX.

	Pars.
Accounts-current	31, 32
Annual supply table	57
Auction sales, proceeds how accounted for	32
Batteries	62, 63, 64, 65, 66
Battery cells or jars	38
Battery coppers	66
Bicycles, care of	67
Bills and vouchers, how prepared	54
Boards of survey	9, 31, 40
Boxes, call, magneto	29, 34
Call bells	29, 34
Callaud batteries, direction for use	62
Certificates of expenditures	28, 30, 37
Communications	49, 70
Condemned property, how disposed of	32
Connectors, battery	38
Coppers, battery	66
Enlisted men of Signal Corps, duties of	48
Enlistment papers	72
Errors in property papers	43, 44
Expendable property	16, 35, 36
Field glasses	16, 27
Final payment of employees	45
Final property returns	3
Forms	55, 58, 69
Gravity batteries, directions for use	62

	Pars.
Heliographs	16, 34
Insulators	39
Inspection of property	39
Inventory and inspection returns	16, 18
Inventory of property	8
Jars, battery	34
Le Clanche cells	66
Letters, to be briefed	69
Letters of transmittal	5
Line material, when expendable	39
Line, telegraph	28, 39
List of expendable property	36
List of forms issued	55
Loss of property, action to be taken	31, 40
Mail packages	61
Mail packages, to be registered	47
Memorandum receipts	47
Military colleges	46, 51
Military telegraph lines, property accountability	23
Military telegraph lines, interference with	65
Money value of articles, how accounted for	31
Muster rolls	71
Nomenclature, not to be changed	24, 25
Oil, for signaling	50
Personal reports of enlisted men	74
Poles, telegraph	39, 42
Practice kits	51
Price list of property	53



INDEX.

37

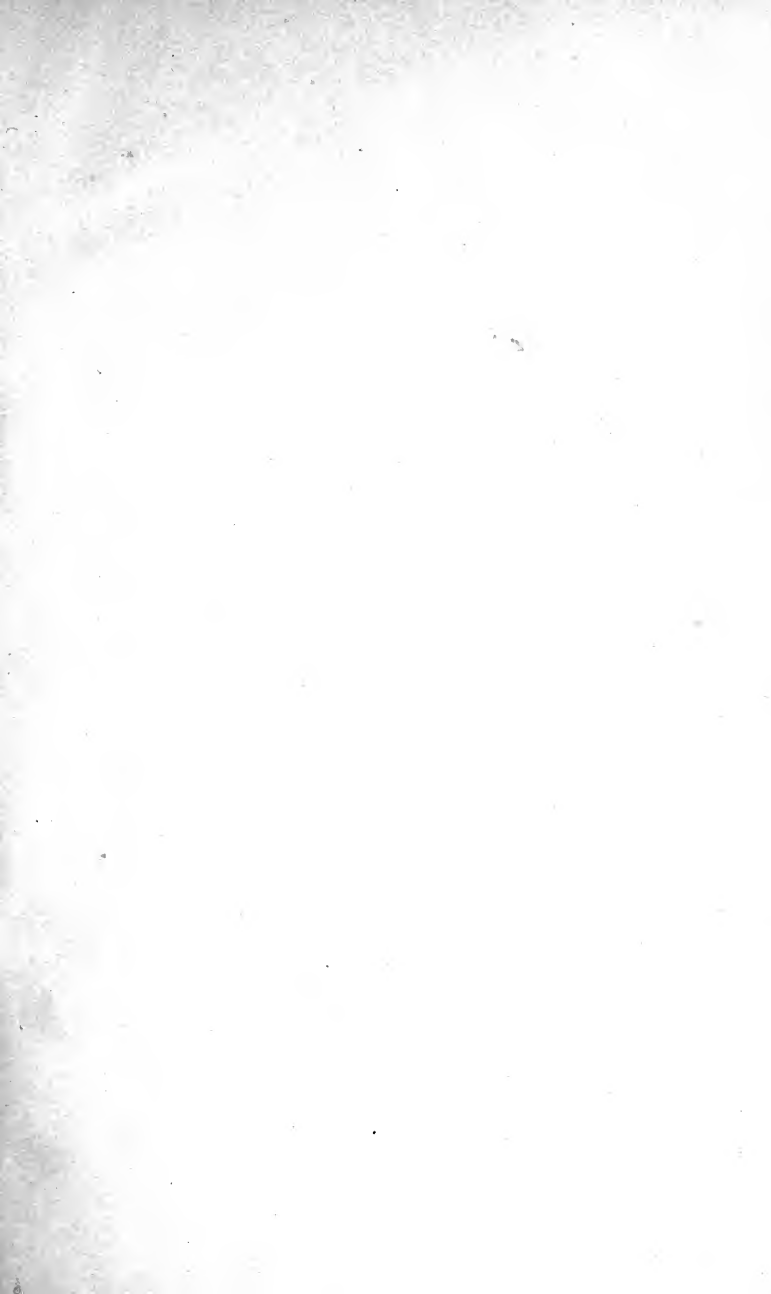
	Pars.
Property, condemned	34
Expendable	16, 35
Final returns	3
Invoiced, but not received, action to be taken	12, 13
Purchased at station	11
Receipts	7
Received without invoice	12
Retained returns	4
Returns, when made	2, 6
Shortage, lost or unserviceable	9, 31, 39, 40
Transfers	10
Unexpendable	22
Unserviceable	17
 Receipts for property	7, 33
Receivers, telephone	59
Rented telephones and transmitters	29
Requisitions	52
Retained property returns	4
Returns, property, when made	2
Returns, headings of form not to be changed	24
Returns, but one person to be accountable at a station	47
Rules for estimating battery supplies	66
 Sal ammoniac	66
Sales at auction	32
Signal Corps, duties of enlisted men	48
Staffs, signal	34
Stations, discontinued, disposition of property	20
Stationery	12, 56, 58
Stolen property	39
Station records	41
Supply table	56
 Telegraph lines	28
Telephones	16, 27, 29, 60

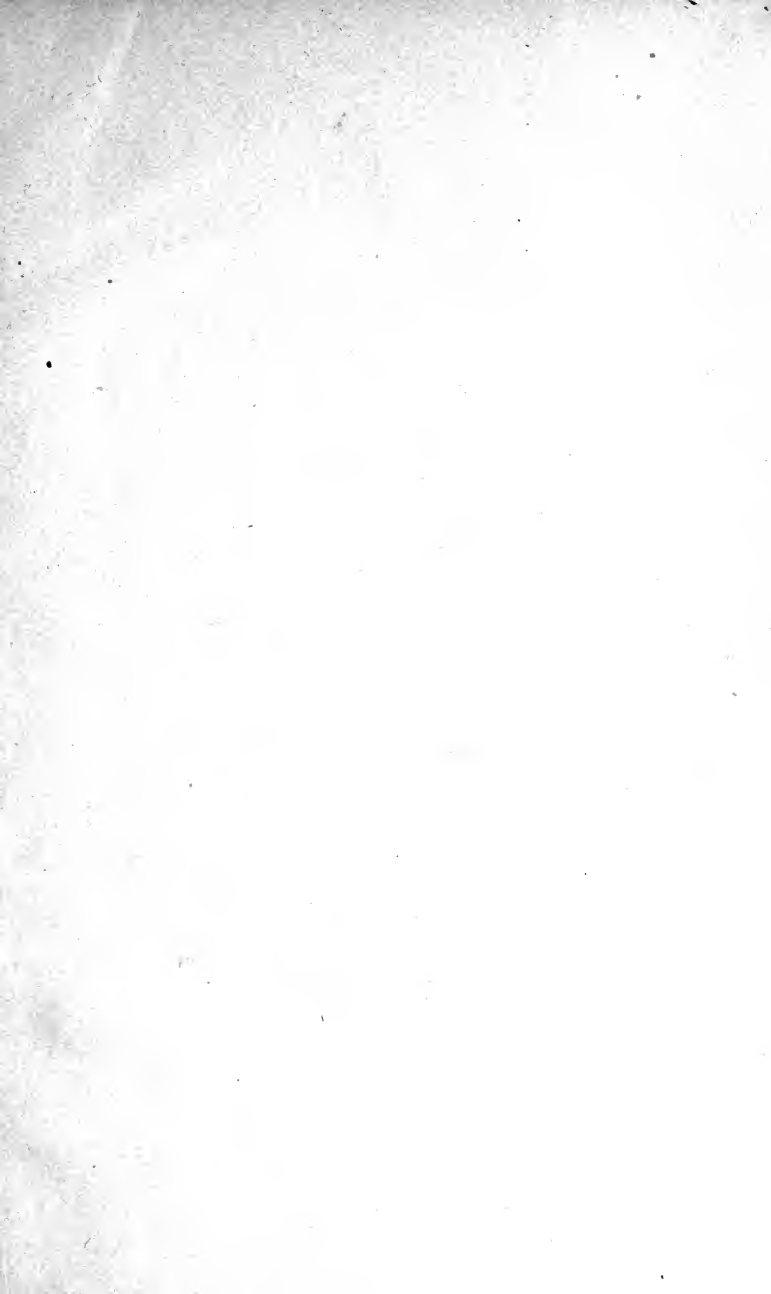
	Pars.
Telescopes.....	16, 27
Transmittal, letters of.....	5
Transmitters	27, 29, 59
Unexpendable property	22, 35
Unserviceable property.....	17
Vises and straps.....	34
Vouchers, how prepared.....	54
Vouchers, missing, action to be taken	6
Wire.....	39, 66
Zincs, battery	66

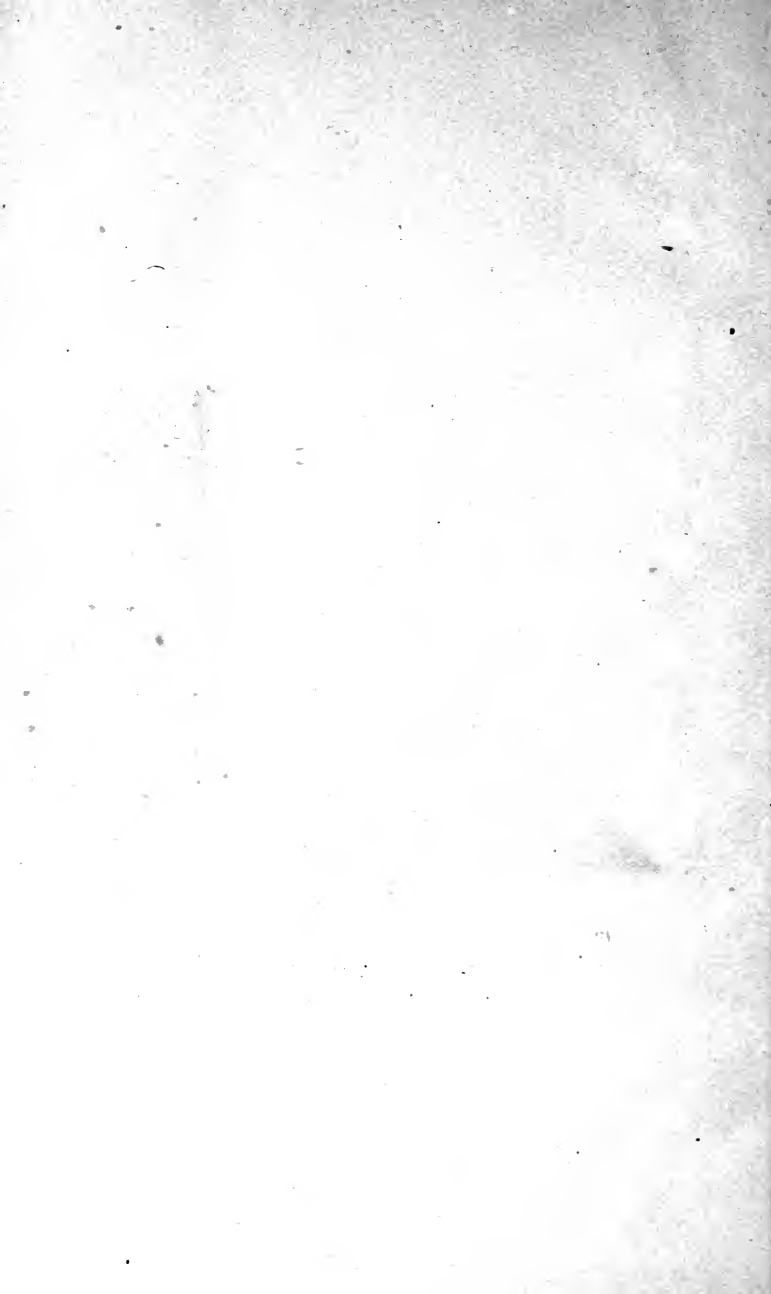
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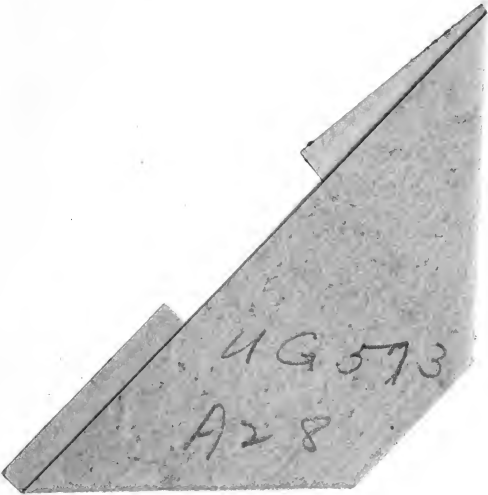
228











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